8 - Haivision Proposal - 8/24/15 - BIT

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Haivision Video Cloud
Proposal and Statement of Work
South Dakota Public Broadcasting
June 23, 2015

About Haivision

Haivision is the global leader in delivering the most advanced video networking, digital signage, and IP video distribution solutions. Haivision is the only company that offers complete end-to-end technology for video, graphics, and metadata in this field and makes this technology available as solutions through integrators and resellers worldwide. Haivision has specific expertise in the education, medical, government/military, enterprise/retail, and sports/entertainment markets.

Haivision is based in Montreal and Chicago, serving global markets via channel partners, systems integrators, and OEM partners. Haivision was the first company to develop advanced, high performance, and low latency H.264 codec technology. Since early 2009, we have been shipping our 4th generation H.264 implementation supporting high definition up to 1080p60. Today, we are viewed as the undisputed leader in high performance on premise and cloud based IP Video delivery.

Haivision VCMS Key Features

The Haivision Video Cloud's Video Content Management System (VCMS) provides fully automated ingest and publishing for live and on-demand video workflows. The VCMS integrates the publishing workflows, file transcoding, media management, and powerful viewer-based analytics within an intuitive user interface providing complete control of the viewer experience and ownership & control over the video content. All of these capabilities combine to offer you the ability to make decisions based on content consumption.

The Haivision VCMS Console enables you to:

- Automatically ingest live events, archives and video on demand content
- Set shortcuts to your everyday views and tasks
- Create thumbnails, video clipping or set chapter points with simple editing in the console
- Easily reaching all devices, TVs, and outlets with Publish Profiles
- Update content dynamically as new content is added, presenting an editorial playlist, or combining the two formats

Feature	What it Does	Why it Matters
Haivision Live transcoder support	Live and on-demand streams from high quality encoding sources such as Haivision's KulaByte, Makito X, or Haivision's Media systems such as the Calypso and Furnace,	*Simply deposit your content into a watch folder and take advantage of intelligent publishing workflows to make it available to any user, on any device.*
Media Management	Users may upload media and metadata files, edit and enter metadata surrounding the video, add content restrictions view, and modify the files associated with each title and publish videos.	*VCMS offloads much of the heavy lifting of managing and publishing content. Major tasks are performed in a single console.*
Feeds 3.0	Define your video channel with dynamically driven feeds, editorial playlists or a combination of both.	*VCMS allows you to better engage with your audience across multiple devices, outlets, and destinations using tools that can help you adapt, customize, and curate feeds.*
Reporting	Usage reports provide views per title, format, affiliate date range and more. System task reporting provides updates on current operations or errors.	*Users can easily monitor and track performance of their content across the enterprise.*
Admin	Administrators can add users for each property, modify the account, set categories, define the metadata schema, and configure servers and program custom commands.	*Administrator tasks are streamlined through a simple console to condense workflow and save time.*
Ingest	Admins can define watch folders, feed readers and add new adapters to automate the ingest process.	*Bringing content into your system is a rapid and simple process.*
Publishing	Define publish profiles to reach new websites, mobile phones, outlets, and TVs with your video. Sharing profiles enable you to publish content to other VCMS accounts.	*The VCMS publishing process easily connects your content across multiple sites, devices, and shared outlets.*
Policies	Define content restrictions such as airdates, geo-restrictions, acceptable IP addresses and appropriate user-agents. Advertising policies define when to insert ad's and which ad servers or networks to work with.	*Setting policies is simplified and managed through a single console.*
Help	The online technical resource center covers the entire VCMS system along with dynamic 24/7 support.	*Online and live phone support is immediately accessible.*
Shared Transcoding	Simplify your file conversion with our transcoding farm.	*Shared Transcoding will resolve the task in a best-effort manner with provisions to ensure no single customer can monopolize the farm.*

Connectors	Connectors allow you to distribute your content directly to another system in the proper format.	*Connectors give your content maximum exposure through AT&T™, GoTV™, mobitv™, QuickPlay™, Comcast, Hulu, MSN Video, YouTube™, iTunes™, and Yahoo.*
Player Dev Kit	The Haivision Video Cloud Player Development Kit has everything you need to build a custom unique, Flash-based or HTML 5 broadband video player.	*The Player Dev Kit is fully customizable, and when paired with your content, will create a compelling viewing experience for your audience. The PDK will accelerate your time-to-market for new video players.*

Haivision Video Cloud: A Services Oriented Approach

Architecture

Technologies that build, connect, and reuse separately deployed services are able to deliver new features and enhancements more easily and without disruption. A service-oriented architecture (SOA) also provides a stable and flexible foundation for the system as a whole. More specifically, it identifies how all parts of the system should perform, and then separates each set of supporting functionality and builds individual services around them. These services then self-coordinate using a registry of available services and a common API model. Why do this?

A Cloud-based Service Oriented Architecture will evolve and scale — without disruption.

VCMS Services Oriented Architecture

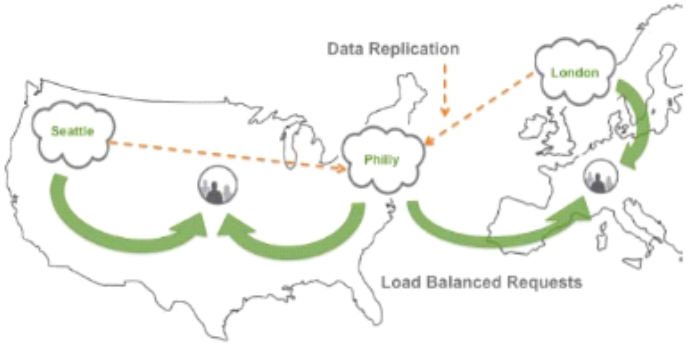
When these services, such as Media Data, Feeds, Rights and Entitlements, and others are separated from each other, developing and modifying them is easier. The solution can swap out newer features and enhancements, reduce bottlenecks, and more. From a reliability standpoint, if a select service has a failure or interruption, other services can continue to run until that service comes back online.

Reliability

The VCMS infrastructure currently handles requests for approximately 400 million videos a month and billions of requests for metadata a year. The Haivision Video Cloud provides the strongest SLA available in the market (99.999% availability) to guarantee uptime.

Our SLA is possible through read-only services, supported by geo-redundant data centers and they ensure your content will be delivered via an infrastructure that maintains the ability to:

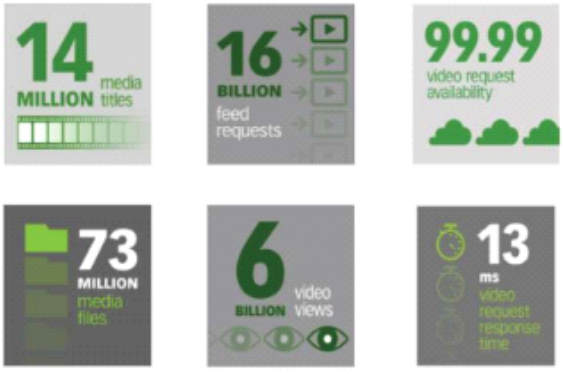
- Fail over service traffic in the case of a localized service issue using global load balancing
- Protect against ISP/Internet routing issues causing black holing of all customer traffic
- Ability to fail all services over in the face of catastrophic datacenter failure



HVC Global Data Centers

Scalability

The cloud-based infrastructure powering the VCMS solution not only provides a 99.999% percent availability service level agreement it does so while offering unparalleled scale. Whether your media is delivered through your preferred CDN provider or through local, on premise media servers the following statistics illustrate what the system is capable of:



Haivision Video Cloud Traffic

Scope of Work

Introduction

Haivision and The South Dakota Public Broadcasting organization are exploring Haivision's Hardware, Software and cloud based systems for delivery of scheduled audio and video media to the public.

Purpose

The purpose of this document is to outline and define the requirements for Live and On Demand delivery of scheduled Audio and Video content from multiple South Dakota Government facilities and various South Dakota sports venues to various South Dakota Public Broadcasting Web portals and mobile apps.

Objectives

The goal of Haivision's efforts for South Dakota Public Broadcasting is to provide the following:

1) Replace Current Audio Streaming for the Legislative Research Council.
2) Deliver from 15+ House and Senate Committee rooms located in the capitol.
3) Scale the solution providing delivery to Executive Branch facilities adding another 15-20 Committee Rooms statewide.
4) Initial delivery will be for Audio files with solution scalable and capable to deliver Video Now and into the future.
5) Provide Mobile Encoding solution for Live Streaming of various Statewide Athletic events.
6) Backend service to provide scheduling interface to schedule the Live and Sim-Live (VOD) events or content. System to provide automatic recording, (cloud) publishing and scheduled delivery to web portals and mobile apps. Media to include all required meta-data.

Key Deliverables – Mission Critical

South Dakota Public Broadcasting requires that Haivision deliver a fully automated workflow for the capture, streaming and scheduling of media. This includes:

- Live Encoder Scheduling for Live Streaming of events from:
  - Multiple legislative rooms across the state
  - Sports events
- Live Encoder Archive, Capture and Upload of Media to Haivision Video Cloud – Video Content Management System (VCMS)
- Video on Demand Media Scheduling for playback from VCMS to web portals and mobile apps.

Key Deliverables - Required

South Dakota Public Broadcasting may contract with Haivision to deliver the following Live and On Demand services along with scheduling, reporting and other delivery options Including:

- Provide and configure on premise and cloud based hardware and software.
- Review of Encoding Requirements and options to determine initial and growth needs.
- Review existing workflows and delivery to devise a plan for migration from audio only files to audio and video files to all portals and apps.
- Deliver Scheduling tool allowing for automatic archiving, uploading and scheduling of Mp3 and Mp4 media files.
- On demand audio and video content managed in VCMS delivered via Akamai CDN to VCMS players, mobile devices, various third party players, set top boxes and or APPs / WAPs.
- Publishing of VOD content to various third party outlets such as Apple's iTunes, You Tube and other channels of the clients choosing.

Project Needs

This project could be broken into 4 parts with each part being deployed in concert with or independent of each piece. The project can be approached independently, but may/will benefit from economies of scale in purchase, standards of operation, and scalability.

- **Webcasting audio capabilities from 7 rooms** to improve public access to agency and commission meetings. Considerations: reliable system components, ease of user operation from sign-up, client service to their audience, live meeting, and audio archive and support materials.

- **Webcasting audio from existing LRC Meeting rooms** in the Capitol. Considerations: common webcast platform, reliable system components, and audio file integration to the existing LRC web platform.

- **Mobile audio webcasting platform** for agencies and commissions with special "one-off" sites. Considerations: system portability, access to streaming host through public Internet, ease of user operation from sign-up and check-out, integrating with the users PA or on site microphone system, client service to their audience, live meeting, and audio archive and support materials.
- **Primary SDPB Audio and Video Webcasting system** for digital only distribution and simulcast with broadcasts. Considerations: quality, capacity, reliability, closed-captioning, integrating with current media platforms, web development tools, integration with meta data standards and with PBS and NPR media storage platforms, ease of audience access and use, and long-term storage and archives.

- The series of questions regarding equipment, networking, integration, operation, and support, varies with each part of this project. Each part adds a new layer of detail over a common backbone system and the details of each layer need to be considered completely without sacrificing existing quality and customer service

Project Phasing

The overall solution will be delivered in three phases. Phase I and II are separate locations and Phase IIB includes rooms within the capital complex and have audio capabilities.
Note: Room 414 has existing video capabilities.

- Phase I – Pierre Mathews Training Center, the DOT Commission Room in the Becker Hansen Building, and the Board Room in the McKay Building (3 rooms total Audio only)
- Phase II – Sioux Falls Locations (University Center, Medical Board) and Rapid City University Center (3 rooms total are Video capable)
- Phase IIB - LRC Capital rooms - Governors Large conference room, House Floor , Senate Floor, Rooms 412,413,414,423,464,LRC1 & LRC2 (10 rooms total audio 414 is video capable)
- NOTE: 2 portable units will need to be DHCP

Media Break Down by Room (17 Total - 2 portable)
New rooms – 4-Audio - 3-Video
Existing Room - 9-Audio - 1-Video
SDPB Streaming from Studio - 4-units

All the Committee Rooms that offer video are SD with the exception of one, which is HD (room 414.)
For the SDPB - 3 HD
Breakdown is:
15 Audio
3 SD Video
5 HD Video

Proposed Workflow

Haivision will provide the Haivision Calendar / Scheduler for State of South Dakota and South Dakota Public Broadcast, which will occur in three phases. The Calendar / Scheduler provides automation of a scheduled live event "lifecycle" by maintaining control of an asset pre, during and post event with a single data entry. The Calendar / Scheduler accomplishes this objective by supplying an intuitive interface for the client to remotely manage and schedule live streams through Kulabyte encoders. The calendar allows for seamless integration of a live event by uploading it automatically to VCMS to produce a VOD asset. Once an asset is VOD the metadata associated with the asset is automatically updated and dynamically linked with the corresponding metadata from the live event. This technology increases accuracy by removing the need for manual intervention after the file is uploaded into the system.

Haivision will provide the implementation of a web interface to display custom metadata for the South Dakota Public Broadcasting website. The interface will interact with VOD assets from feeds generated from the VCMS. This allows end-users to view custom metadata associated with an event beyond what is available via the VCMS basic player.

Objective

- Calendar / Scheduler system build for State of South Dakota / SDPB
- Allow SDPB to schedule rooms and activities for live events

- Manage Kulabyte encoders from an external calendar based interface.
- Dynamically link asset meta data with VCMS
- Web Interface to display custom metadata for the South Dakota Public Broadcast website.

Haivision is proposing the following Hardware configurations, software solutions and workflows.
See (Appendix A)

Makito X SRT Encoders on premise at all South Dakota government facilities / rooms at the origination of content to be streamed. Makito X encoders will encode Audio and Video media streams and deliver content to Akamai using SRT (Secure Reliable Transport) over the public Internet. The Makito X will also be configured to create local archives for private meetings.

Kulabyte Multi-Bit Rate encoder(s) will be provisioned as a cloud instance in a secure data center of Haivision's choosing. Kulabyte encoder will have the number of channels equal to the incoming Makito X encoders. Kulabyte delivers multi-bit rate streams to end users using Akamai HDS and HLS stream packaging for exceptional user experiences.

Depending on the requirement, Haivision will configure Makito X Encoders for Private meetings (unpublished archive) and Kulabyte Transcoders (automatically archive and publish) streaming content. These files will be automatically delivered to Haivision Video Clouds Video Content Management System (VCMS) for publishing and delivery as Video On Demand content using Akamai Net storage with the VCMS feed service and embeddable players delivering content as Flash and HTML5.

LRC Archives will be handled separately by delivering the archive files directly to SDPB staff.
All Hardware and delivery is connected to Haivision's Cloud based scheduling platform allowing South Dakota Public Broadcasting the ability schedule (or not) any or all Live streaming events.

Akamai Detail

Media
Haivision will provide South Dakota Public Broadcasting access to an Akamai Named account giving SDPB staff access to Akamai Luna for Entry Point configuration / provisioning, Media Analytics and other Live and VOD data.

Media Ingest

Auto Ingest
Haivision will create media workflows providing the upload and publishing of content to the South Dakota Public Broadcasting online portals and apps.

Publishing / Transcoding

Haivision can create the following encoding profiles for SDPB to generate multi-bit rate renditions from their uploaded mezzanine file. If the client requires, the Publishing profile can be configured to remove the mezzanine file from NetStorage after the publishing process is complete. Our current default is for 4x3 and 16x9 variants of the profiles noted. We do not "up" transcode – a mezzanine of suitable quality should be delivered to render higher bitrates, e.g. if 1mb/s is uploaded – the 1.2 and 2.5mb renditions are not created.

2.5 Mb Mp4
1.2 Mb Mp4
600K Mp4
400K Mp4
200K Mp4
Web Thumbnail

Delivery

Haivision's VCMS offers a full REST API for delivery to their various portals and or Content Management Systems (CMS) using scripting (Java, JSON, CJSON, Ajax etc.…). Haivision can provide additional syndicated delivery to public portals, as required and recognizes SDPB manages a vast media ecosystem:

YouTube

The South Dakota Public Broadcasting team can automatically deliver content to YouTube. Haivision can provide a YouTube connector for syndication to SDPB YouTube channels.

iTunes

The South Dakota Public Broadcasting team can automatically deliver Podcast and VODcast content to iTunes through the feed service.

Players / Play-out

Haivision VCMS offers a wide assortment of customizable Live and VOD players that deliver MBR content as Flash and HTML to Computers, mobile and some set top boxes. Haivision will provide live and VOD players and will train The Potters House team on how to create, customize and embed these media players.

Teams

BIT/SDPB		
Personnel	Title	Email
Severn Ashes	Director of Engineering	Severn.Ashes@sdpb.org
Kent Osborne		
Mike Johnson		
Brian Adams		
Jay Etzkorn	Technology Engineer	

Haivision		
Personnel	Title	Email
Alan Haefs	Director IMS	ahaefs@haivision.com
Phil Gauthier	Account Manager	pgauthier@haivision.com
Ari Burt	Developer	ariburt@gmail.com
Jason Shore	Developer	jasonshore@gmail.com
Justin Arnett	Engineer	jarnett@haivision.com
Edward Sanborn	Engineer	esanborn@haivision.com

Timetable			
Priority	Item Description	Target	Completed
1	Meeting to Review Requirements	6/3/15	6/3/15
2	Deliver Quote	6/23/15	
3	Deliver SOW	6/23/15	
4	Phase I (See Detail Below)	10/1/2015	
5	Phase II / IIB (See Detail Below) BETA	11/1/2015	
6	Phase II / IIB (See Detail Below) Completion	12/1/2015	

Dates may be modified to meet client requirements or to adjust for unexpected delays in communication or provisioning by a third party.

Standing Call

The Haivision and South Dakota Public Broadcasting teams will calendar a standing call during the deployment and configuration phases of this project and will maintain that call as long as deemed necessary until both teams agree to suspend the call following successful deployment and contract commencement.

Haivision Pricing

Pricing below is displayed into two parts:

1. **One Time Fees**
    a. Custom development of Calendar Scheduling System
2. **Monthly Recurring Fees**
    a. Video Content Management System
        i. Including Consumables (Akamai CDN, etc.)
    b. Monthly Managed Appliances
        i. On Premise – Makito X Encoders with Storage / Decoders
        ii. Cloud Hosted – Kulabyte Encoder / Transcoder Channels

1. Calendar / Scheduling

Phase I (LRC requirements)
(Estimated rollout: 10/1/2015)
Cost: $60,000 One Time

- Calendar
    - Adding support for scalability past 4 rooms
    - Adding security to meet or exceed SDBIT requirements
    - Adding support for Kulabyte 4.4
    - High Availability
- Archives
- Scheduling live events

Deliverables - Video and or Audio file with a Metadata payload to LRC servers

Phase II.
(Estimated Beta: 11/1/2015)
(Estimated completion: 12/1/2015)
Cost: $20,000 One Time

- Starts at Phase 1 completion
- Delivering content from creation to delivery on Web site
- Using IHOPKC Layout that will be reasonably modified for SDPB needs.

Deliverables - VCMS objects (Live \ Archive) and content displayed on website.

2. Video Content Management System / Managed Appliances
Supporting the State of South Dakota and SDPB Requirements
(Estimated Rollout: 10/1/2015)
Monthly Cost - $10,950
* 5 year agreement

Equipment Requirements to Support State of South Dakota and South Dakota Public Broadcasting

- Video Content Management System (Replaces Ooyalla / Limelight)
- Includes:
  - Live and On Demand Delivery via HTML 5 / Flash Based Players
  - Automated File Based Transcoding
  - 180 TB's Delivery – Annual Bucket
    - (overage at $.10 / GB)
  - 500 GB's of Akamai Net Storage per Month
    - (overage at $.30 / GB)
  - 1.8 Million Media Requests – Annual Bucket
    - (overage at $.02 per 100)
  - 120,000 File Based Transcoding Minutes – Annual Bucket
    - (overage at $.04 / minute)
- Fourteen (14) Makito X SRT Single SDI Managed Encoder Appliance with Removable Storage
  - Additional units - $500 per Makito X Single Input per month
- Three (3) Makito X SRT Dual SDI Managed Encoder Appliance with Removable Storage
  - Additional units - $650 per Makito X Dual Input Encoder per month
- Three (3) Makito X Dual Managed Decoder Appliance with Chassis
  - Additional units - $400 per Makito X Decoder per month
- Twenty Four (24) Kulabyte HD Encoder Channels – Cloud Hosted
  - Additional channels - TBD

Ongoing support
- Support for calendar services, product updates.
- Covering: Kulabyte to Calendar Link, Calendar System, VCMS relating to calendar operations
- Monthly Managed Support for all Appliances (Makito X / Kulabyte Cloud Solutions)
  - Support / Maintenance / Swap Out / Software Upgrades Included
- Support for up to 25 rooms
- 24/7 Customer Support
- Dedicated Account Manager

TOTAL PRICING SUMMARY

Phase I Calendar Development - $60,000 ONE TIME
Phase II Calendar Development - $20,000 ONE TIME
Monthly Recurring Fees - $10,950
* 5 year agreement

PURCHASE OPTION:

Fourteen (14) Makito X SRT Single SDI Managed Encoder Appliance with Removable Storage - $8995 each + 10% Maintenance and Support Each Year.

TOTAL - $126k + 10% ($12,600) = $138,600 year one and $12,600 per year.

Three (3) Makito X SRT Dual SDI Managed Encoder Appliance with Removable Storage - $11,995 each + 10% Maintenance and Support Each Year.

TOTAL - $35,985 + 10% ($3,598) = $39,583 year one and $3,598 per year.

Three (3) Makito X Dual Managed Decoder Appliance with Chassis - $4,995 each for decoder and $5000 for Chassis.

TOTAL - $14,985 + 10% ($1,495) Maintenance / Support - $16,480 year one and $1,495 per year + $5,000 for Chassis.

Summary of Total - $199,663 YEAR ONE. $17,693 Year Two and onward.

This option would reduce the monthly fee to $8,400 per month.

This monthly fee would include the Video Content Management Solution, Consumables for Streaming, Storage, etc. It also would include the Cloud Transcoding Solution, which ingests the Makito X streams, transcodes those streams and makes available for viewing live on the web in multiple bit rates.

Product Information

- Makito X Encoder - http://www.haivision.com/products/encoders/makito-x
- Makito X Decoder - http://www.haivision.com/products/decoders-players/makito-x-decoder
- Secure Reliable Transport - http://www.haivision.com/products/secure-reliable-transport
- Kulabyte Encoder / Transcoder - http://www.haivision.com/products/encoders-transcoders-internet-streaming/kulabyte
- Haivision Video Cloud - http://www.haivision.com/products/internet-streaming/haivision-video-cloud